

The New Jersey Shore...



THE HUNGRY SEA

Pounding power of sea is evident in this view of area at southern end of Sea Bright showing waves breaking against stone sea wall.

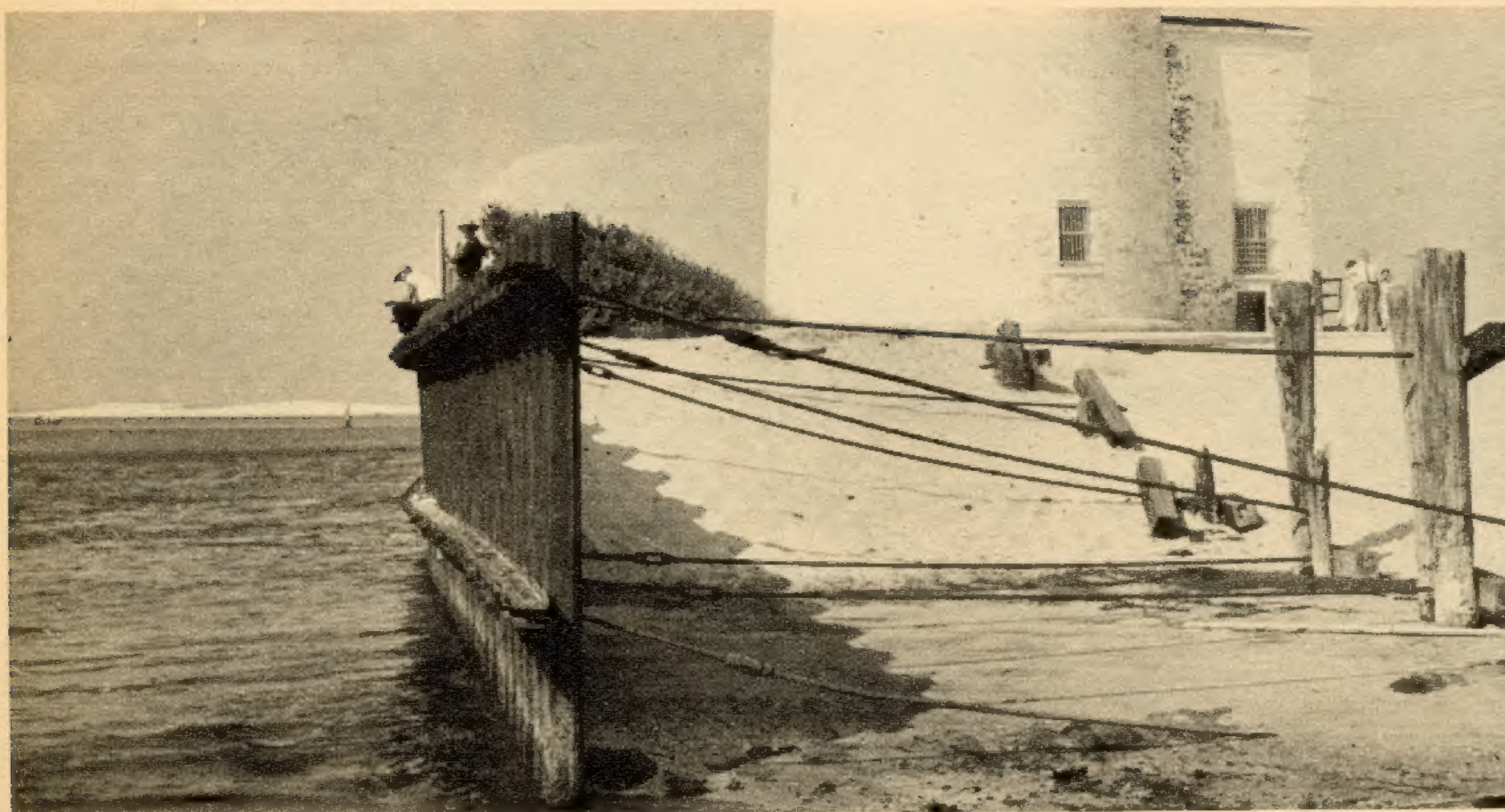
*Battle Against Erosion Is Never-Ending
Project for State Which Seeks to Preserve
Golden Sands Along 125-Mile Beachfront*

By JOHN T. CUNNINGHAM

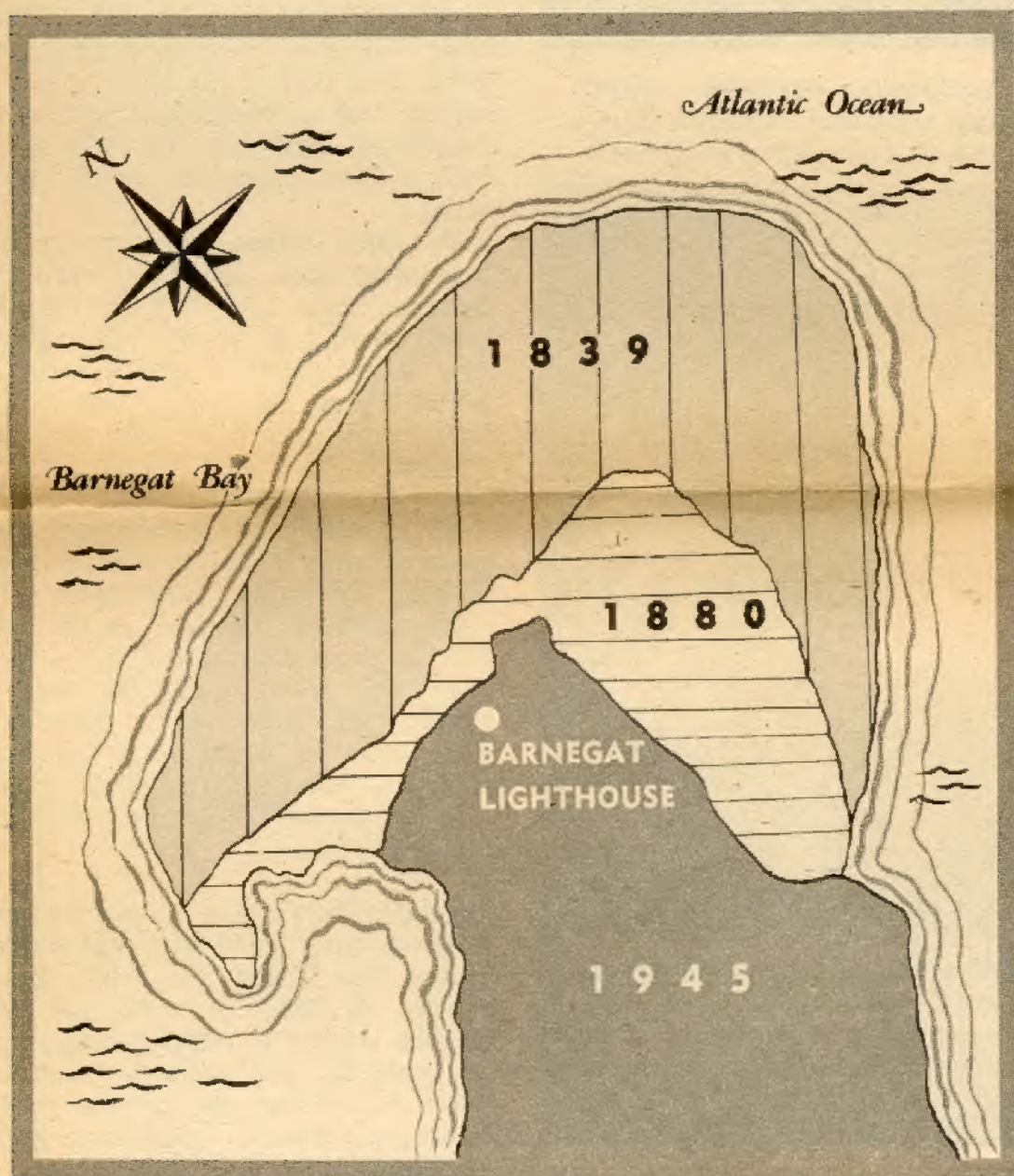


Contrasting scene at Long Branch of relentless action of the Atlantic. Above view was pictured late in 1953; last year at right.





Inlet waters eddy closer and closer to historic Barnegat Lighthouse on northern tip of Long Beach. Chart (left) outlines some of erosion stages.



SPRING smooths the uncertain temperament of the surly winter sea. Waves cease their erosive biting at the beachland sands, as if eager to cooperate fully with those humans preparing to welcome millions of visitors to the New Jersey Shore in the vacation months just ahead.

Except for a rare stormy mood in July or August, the Atlantic Ocean in the summer months will be as pleasant and as willing to please as a puppy who is genuinely sorry he has just torn up his master's shirts. Rare indeed is the summertime visitor who recognizes that this gracious sea holds every bit as much power to destroy as it holds to please.

This is the paradox of the Atlantic

Ocean (or any ocean, of course). The sea that makes the New Jersey Shore valuable is also that very thing which day in and day out fights the seacoast—normally with the tapping cupidity of the bantamweight, occasionally with the flailing brutality of a heavyweight. The sea hasn't given that shore to mankind forever; it's merely ours on short-term loan.

The battle between sea and shore is billed officially as erosion, and pos-

sibly nowhere is the problem of erosion as serious as it is along the 125-mile New Jersey beachfront. The state's frontage along the rolling Atlantic is worth something like five million dollars a mile in assessed valuations—so when the ocean eats away a few acres it lunches on what amounts to gold rather than sand.

GEOLOGISTS at times have argued that coast protection is a losing battle, that through passing centuries the forces at work inexorably tend to level landforms. Engineers, on the other hand, argue that while a thousand years may be a short period of time in a geological sense, they must work within the framework of the immediate present. As one engineer has put it:

"Mortgages don't run for a thousand years at the New Jersey Shore."

Erosion unquestionably is the No. 1 problem confronting our billion-and-a-half dollar seashore resort industry. Several beachfront municipalities are in dire circumstances—both economically and physically—because of their battles with the sea. Towns like Long Branch and Cape May, the state's oldest seashore magnets, find the ocean menacing their very resort existence.

Long Branch's erosion problem is dramatic; as recently as last year a storm tide threatened to topple a small hotel into the surf. Portions of Ocean Ave. are undermined. It doesn't take an engineer's eye to see what the sea has done to that pitifully exposed bluff.

Elsewhere the pounding power of the sea is evident—at Sea Bright, where waves break ceaselessly against the massive stone sea wall; at Cape

May, where another sea wall holds the sea back from the ocean road, and at Barnegat Light, where a continuing fight goes on to save the hundred-year-old lighthouse from destruction.

THERE are such startling seashore changes as that at Tucker's Island south of Long Beach Island. Thirty years ago a little village, including a Coast Guard station and a school, existed on that island. Today all human habitation is gone and Tucker's Island is drastically reshaped.

Nature is an implacable foe. She holds all the offensive weapons, has on her side every element of surprise, can alternate wild fury with disarming peacefulness. She even has those men fighting her along the coast divided as to how erosion can best be overcome or delayed.

Recently the Army Corps of Engineers in cooperation with the State Department of Conservation and Economic Development completed a massive study of the shore erosion problem between Sandy Hook and Barnegat Inlet. Much agreement with the findings followed, but many an experienced shore engineer found fault with the study—particularly when its findings differed sharply from his own beachfront practices.

Nevertheless, that Army survey, plus three others in progress along the shore, may hold the eventual key to the first coordinated program of erosion prevention and control in history. The other surveys encompass the Raritan Bay region, the oceanfront between Barnegat Inlet and Cape May and Delaware Bay from Cape May to the Maurice River.

There is one slight drawback: Money.

The Army report indicated about 25 million dollars would put the Sandy Hook to Seaside Park region in excellent shape—with every resort beach extending at least 100 feet out from boardwalk or sea wall. Of that total, the federal government would put up about three million dollars—leaving 22 million dollars to local governments and/or state.

MONEY and erosion go hand in hand. Since the turn of the century something like 20 million dollars has been spent in the fight—an appalling amount of it on groins and jetties and sea walls which proved completely ineffective. Between 1940 and 1953 the state put up eight million dollars and local municipalities \$5,500,000 to combat erosion. A large part of that might as well have been tossed into a September gale. Indeed, the very spot where the most money has been spent—Long Branch—today is probably the worst off.

Early settlers and vacationists observed erosion, as much to while away the summer hours as anything else. Commodore Stephen Decatur, Cape May vacationist, in 1804 measured the distance from Atlantic Hall to the edge of the beach to be 334 feet. Later vacationers noted in 1829 that the waves lapped at the base of Atlantic Hall. The ocean had claimed 334 feet in 25 years!

A comprehensive study released in
(Continued on Following Page)

This is the ninth of a series of articles on the New Jersey Shore. In the next installment the writer will consider the U.S. Coast Guard, and the development of lifesaving patrols brought about by some famous shipwrecks early in the state's history.



Airview of Shark River Inlet area graphically illustrates "litoral drift" northward. Note how jetty has built up Belmar's beach (foreground) while receding sands of Avon are being deposited elsewhere.

BEACH EROSION

(Continued From Preceding Page)

1923 gives one of the most intriguing pictures of New Jersey shore erosion ever disclosed. That study, by an engineering advisory board of the State Board of Commerce and Navigation, showed the ocean had robbed the state of 2,496 acres of beachfront in a century.

Take a closer look at that thievery—that was net loss. Overall, 5,521 acres of beachfront property went with the waves in that century, but the whimsical waters gave back 3,025 acres in other places. Some places, such as Atlantic City, Asbury Park, Cape May and Long Branch, had seen their beachfronts recede anywhere from 600 to 1,400 feet; others, such as Wildwood, Avalon and Beach Haven, observed their beachfronts build outward from 350 to 600 feet.

EROSION goes on. Recent engineering estimates show an average erosion rate of 2½ feet annually from Sandy Hook to Cape May. Worse, though, 70 per cent of coast locations showed net annual erosion averaging six feet.

Six feet really isn't much. A July bather would be more likely to notice an extra inch around his waistline than six feet less of beach. Erosion is subtle—six feet, 10 feet, 15 feet, these are scarcely noticed from one summer to another. Sometimes erosion can be spectacular, as for example, during a howling northeast storm—but not many shore enthusiasts are around to see such spectacles, scheduled by nature in off-season months.

Storm damage is an awesome thing, whether viewed in the midst of a roaring gale or merely when viewed in the mound of statistics piled up when the skies have cleared. Take,



Southern drift at Cold Spring Harbor Inlet has "added" to Wildwood Crest (background), "subtracted" from Cape May.

for example, four major storms in the last 20 years—the hurricanes of September 1938 and September 1944, and the storms of November 1950 and November 1953.

The hurricane of 1938 chalked up about a half million dollars in damage and the hurricane of 1944 walloped the shore for \$7,127,000—more than four million dollars in Atlantic City alone. The southeaster of November 1950, accompanied by torrential rains and powerful winds, totaled \$5,877,000 in damages. Finally, the November 1953 blow, wrapped around two full moon tides, hit the shore with a thunderous smack totaling \$7,650,000. That's some 21 million dollars in four storms; in addition, smaller storm damage piles up less awesomely every year.

SUCH losses makes it increasingly difficult for an average shore municipality to shoulder both community reconstruction and beach restoration. Still, such losses as boardwalks and buildings tend to cast into the shadow the really vital loss—the loss of beachfront. Boardwalks can be rebuilt with money; beaches aren't necessarily brought back by expending huge sums.

Rude winds and heavy seas cause the most evident erosion, since waves strike the beach obliquely and scour away the sands well above the normal high tide mark. Nevertheless, erosion is an insidious 24-hour-a-day undertaking of the surging seas; a grain of sand is moved each day ever so slightly. Joined by countless millions of other grains, moved inch by inch,

that grain of sand moves as surely away as the sand ridden furiously before a gale.

New Jersey's inability to fend off the ocean stems in large measure from a lack of inter-municipal co-operation. Practically everyone agrees to that; practically everyone has agreed to that for some 50 years or more. Criticism of "piecemeal" attacks on erosion have been appearing in reports ever since a series of winter storms ripped the shore in 1913 and 1914.

THOSE storms had a virtue because even as they threatened to wash Sea Bright and Monmouth Beach off the map entirely they pointed up the bitter fact that the time to begin the battle against erosion long since had passed. Those storms brought home pointedly what some voices had been speaking into the wind ever since 1870.

In Atlantic City, by way of illustration, 7,000 persons (mostly out-of-town vacationers) in about 1870 affixed their names to a petition asking Congress to put up the money to halt a serious loss of beachfront. While his neighbors scribbled, Dr. Walter B. Dick, a Navy surgeon of the Civil War, acted.

Dr. Dick owned property in the Brigantine Inlet section and each day he hired boys to row him out into the ocean so that he could study eddies. The doctor built a crude jetty of wooden boxes filled with sand. Neighbors laughed, until Dr. Dick sold lots on land once under water—lots reclaimed by his jetty.

So it went. The government constructed some jetties in 1878, seeking to keep Manasquan Inlet open. The Jersey Central Railroad in the late 19th Century built a bulkhead on the ocean side of its tracks between Atlantic Highlands and Monmouth Beach and the Army threw up a sea wall part way up Sandy Hook. It was all very unscientific, very costly and most ineffective.

CONCERTED action might well have followed those 1913 and 1914 storms except that World War I interfered. Finally, in 1920, the state got into erosion studies in earnest—egged on not only by the wailings from the beach towns but also by the gentle lashing of a Tenaflly uplander, J. Spencer Smith.

Mr. Smith began to study beach erosion in 1915 when he became a member of the New Jersey Board of Commerce and Navigation. He never stopped until his death in 1953. In 1926 he organized and became president of the American Shore and Beach Preservation Association. The words of Mr. Smith reached from coast to coast; he led the anti-erosion troops into the fight.

He said some things the beachfront interests liked, among them the strong urgings that greater state and federal sums be expended to halt erosion. Resort towns liked that; J. Spencer Smith would save them some money.

The Tenaflly beach preserver also said persistently some things the resort owners didn't like—particularly the unqualified declaration that

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beaches belonged to all the people, especially if the taxes on all the people were to be spent in the fight on erosion.

Mr. Smith liked to recall a "gentleman who called to get the state to protect his property from the sea." This was the problem, as he saw it:

"If the state had stepped in and saved his property, would he have been willing for the public to enjoy the ocean breezes on a hot day while making free use of the land to which he held title?"

VARIOUS federal, state and municipal studies began in 1920 and have continued ever since, with reports coming almost as often as the year-in and year-out hurricanes. Usually the reports have gently upbraided mankind for tearing down the dunes—nature's protection—for building too close to the ocean, and for undertaking erosion control measures meant to protect one resort without more than casual care what a jetty might do to any adjoining town.

Engineers disagreed among themselves, and their theories of ocean behavior often contradicted one another. Even to this day there are divergences of opinion among erosion authorities about such matters as where the sand comes from in the first place and how it is moved about in the second place.

There is a strong school of thought holding that much of New Jersey's beach has come from the eroded "headland" of Monmouth County between Long Branch and Bay Head. This—supplemented by sand picked up elsewhere in the ocean, gradually built up the long peninsula from Monmouth Beach north to Sandy Hook and the long narrow islands south of Bay Head.

Off the New Jersey coast the sand dances in two distinct streams—"littoral drifts," the engineers call them. One flows north, the other south, with the "nodal" or dividing point well out in the sea approximately due east of Barnegat Inlet. If no one ever set foot on the New Jersey Shore these streams would cause erosion to go on, of course, cutting away here and adding there, at nature's pleasure. Mankind, by leveling the dunes, and by building ill-advised jetties, has hastened the process.

THROUGH the years the ocean has snarled at man's daring to build on land that even casual observance of geological history could have shown would be washed away in three or four decades. The seas have tipped light-houses into the sea, have washed away mansions and hotels and shacks, have cut the beachfront at Long Branch and Sea Bright back as much as a half mile in 150 years.

How then to fight the ever-greedy sea?

Almost 80 years ago jetties stretched out into the Atlantic at widely spaced points—constructed to break up the violently pounding waves and to stop drifting sand. By 1900 it became clearly evident that often jetties made the situation worse instead of better.

Through the years the building of jetties and groins (both essentially the

same thing) and sea walls has gone on without signal success. Jetties and groins, simply stated, are the long familiar rockpiles (or timber and rock or timber and steel-plate structures) extending out into the ocean at scores of points up and down the coast. Sea walls, again simply stated, are dikes built to protect land roads or homes.

Unfortunately, jetties often provide the perfect modern-day proof that robbing Peter to pay Paul makes no sense. Jetties which preserve Beach A usually ruin neighboring beaches B and C. Sand piles up on one side because the jetty interferes with the littoral drift of sand either northward or southward. On the other side of the jetty beaches are impoverished.

THERE are two classic examples, both at jetties built to protect inlets. The first, at Shark River Inlet, shows the beach at Belmar built out to a handsome width on the south side of the jetty. Meanwhile, on the north side, Avon and Bradley Beach have suffered severely because the northward flowing sand is trapped at Belmar.

The second example is at Cold



Storm's aftermath—Asbury Park boardwalk following the southeaster of November 1953 which caused total damage of \$7,650,000 at shore.

Spring Harbor Inlet, where a long jetty built in the 1920s to protect the entrance to Cape May Harbor has widened Wildwood's beach to the point where it is the finest in the state—but at the same time has ruined Cape May's shore to the point of virtually no beach at all in spots.

Most everyone interested in preserving New Jersey's beaches knows that piecemeal municipality projects may in the long run destroy all but a few resort towns. The answer, carefully spelled out in a dozen or more reports since 1920, is a concerted attack on a regional basis—say, one region within the northern littoral drift and another region within the southern flowing current.

There are now 117 groins, six jetties and seven seawalls—with respective aggregate lengths of 43,000, 12,

000 and 38,000 feet—along the New Jersey Shore. Army engineers in 1954 expressed the belief that more monuments of stone aren't the way to battle erosion. They said that while a few more groins should be built at strategic locations, the essential need is for feeding the beaches with sand dredged up from the bays, from inland, or from the ocean itself.

The thinking here is that if the beaches can be built out to a minimum width of 100 feet, then the cruel impact of storm tides can be spent on a shore line well away from homes and roads and boardwalks. This sort of thinking has only moderate regard for sea walls such as those at Sea Bright and Cape May.

"SEA WALLS are an admission of defeat," says an official of the New Jersey Bureau of Navigation. "They are a hope that the ocean can be stopped at the wall, but the only way to save the beaches for any length of time is to put a wide strip of sand in front of the sea wall."

Actually, there is a strong area of belief that the ocean left to itself would eventually undermine even the

in the politics or economics or sociology of beaches. They simply seek to know how to build them up.

BUT politics and economics and sociology are as much a part of the erosion problem as the pounding waves and littoral drifts.

Money is the thing in which jetties and groins and sea walls and nourishing sand take root. It is estimated that the overall Army program to protect New Jersey's beaches will call for a sum of 35 million dollars or so. Of this the federal government would pay possibly as much as 10 million. That leaves at least 25 million for state and local treasuries to kick around—and that really isn't much money, considering the millions already spent on roads to the shore and bridges across bays.

This money shortage has one provocative aspect. Resort areas recently claimed themselves to be an annual aggregate \$1,700,000,000 industry. If that is true, the question arises: Why doesn't a goodly bit of that (1 per cent would be 17 million dollars annually) go to protect the only real asset the New Jersey Shore has—its beaches?

A State Beach Erosion Commission created in 1949 has been studying the wearing away of the coast. It would like to arouse the entire state to the importance of saving the New Jersey beaches as a state and national playground. Sometimes the commission—composed exclusively of men from the four shore counties—wonders why it can't stir enthusiasm for erosion control in the uplands.

THE answer lies partially in the makeup of the commission; it would seem reasonable that if counties other than shore counties should be enthused, then they should be represented. The answer, however, lies most strongly (and silently) in the dispute over who owns the beaches and who has the right to say who must keep off and who may go on.

This dispute comes most strongly home in the area between Asbury Park and Sandy Hook, the strip of coast where expenditures would be heaviest—nearly 18 million dollars, the Army report says, out of the 25 million needed north of Seaside Park. But there is a rub: This also happens to be the area least accessible to the public, the area of frequent "Private Property, KEEP OUT" signs.

The question, very simply: Should public monies—local, state or federal—be expended to protect private property? There is no easy answer.

Let the people argue such a weighty economic and sociological problem; the ocean doesn't care. The ocean might even get pleasure out of it, because while man argues (or hides such issues under the table), Old Man Atlantic roars on. He grabs a chunk here, puts it there. He ruins a beach, topples a mansion, threatens a light-house, undermines a road.

The Old Man never sleeps. He might be checked if enough dollars pile up against him every year, but he'll never be beaten. A year, 10 years, a thousand years, ten thousand years—Old Man Atlantic doesn't care. He'll get it all back, sooner or later; tide and time are on his side.